RP

University of Hawaii at Manoa

Environmental Center
Crawford 317 • 2550 Campus Road
Honolulu, Hawaii 96822
Telephone (808) 948-7361

RP:0094

PUBLIC NOTICE NO. HI-88-3-W
NPDES and ZOM Permits and Antidegradation Analyses
KAILUA AND HONOULIULI REGIONAL WASTEWATER TREATMENT PLANT

Statement for
U.S. Environmental Protection Agency
and
State of Hawaii Department of Health
Public Hearing - August 30, 1988

By
Gordon Dugan, Civil Engineering
Paul Jokiel, Hawaii Institute of Marine Biology
Steve Dollar, Hawaii Institute of Marine Biology
Keith Chave, Oceanography
Hans-Jurgen Krock, Ocean Engineering
Jacquelin Miller, Environmental Center
Nancy Kanyuk, Environmental Center

Presented by
John T. Harrison, Environmental Center

In response to the above referenced Public Notice, the Environmental Center has reviewed the proposed modifications to the Honouliuli and Kailua Regional Wastewater Treatment Plants for Zones of Mixing (ZOM) permits and National Pollutant Discharge Elimination System (NPDES) Permits, under Section 301(h) of the Clean Water Act. The granting of these modifications would allow the City and County of Honolulu to downgrade treatment of the effluents from outfalls at Honouliuli and Mokapu from secondary to primary. Additionally, the applicant proposes to increase the capacity of the Kailua facility to handle the wastewater currently treated by facilities at Kaneohe and Ahuimanu.

Honouliuli Outfall

Due to the depth of the Honouliuli outfall and the offshore movement of surface waters in that region, no objections have been raised to the proposed discharge of primary treated effluent at the Honouliuli outfall.

Kailua Outfall

The proposal to downgrade the Kailua effluent from secondary to primary treatment has evoked varied responses from our reviewers. It is clear from the divergence in opinions among our equally qualified reviewers as to the potential effects of the discharge of either primary or secondary treated effluent that insufficient data exists on which to make informed decisions. Some contend that oceanographic mixing in the vicinity of the outfall is sufficient to accommodate the proposed change in effluent quality. Others argue that under certain weather and current conditions, an effluent plume would extend into recreational waters of Kailua Bay. We understand that there have been reports that the plume at Mokapu does surface under certain weather conditions, thereby becoming susceptible to entrainment in onshore surface currents. Furthermore, there appears to be no definitive evidence to demonstrate that the higher levels of Biochemical Oxygen Demand (BOD) and Suspended Solids associated with primary treatment will not have significant effects on Kailua Bay. Hence, some of our reviewers are concerned that, lacking evidence to the contrary, a decision to err on the safe side, i.e. keeping the Kailua facility at secondary treatment levels, would be preferred. Concern is heightened due to the high quality of the Bay's waters and their heavy recreational use.

Other reviewers have expressed the opinion that maximum dilution and assimilation of the nutrients can be anticipated with minimal to no environmental significance, given the observed turbulence and high mixing coefficients in the vicinity of the diffuser of the Kailua (Mokapu) outfall. It is not clear that the proposed change from secondary to primary treatment will cause significant changes in phytoplankton populations in Kailua Bay. Any increased discharge of suspended solids is most likely to affect the benthic community in the vicinity of the outfall. Additionally, regardless of primary or secondary treatment, equivalent amounts of nitrogen and phosphorous will be discharged. Therefore, comparable enrichment of the marine ecosystem should be expected, and environmental effects are not likely to be significantly different.

We would also emphasize that the controversy over secondary versus primary treatment does not appear to involve a public health issue. There is no evidence to suggest that public health will be jeopardized by discharge of either primary or secondary treated effluent from the Mokapu outfall. Additionally, it is essential to recognize that plastic debris and solid waste washing up on Kailua beach is not relevant to the issue of primary or secondary wastewater treatment because these materials are removed by either process. It also should be recognized that discoloration in Kailua Bay is heavily influenced by discharge from Kawainui canal.

A number of our reviewers have expressed concern that their ability to assess the proposed actions has been hampered by lack of information. A three dimensional, limited area model should be developed to predict the behavior of the plumes created by the positively buoyant discharge. Reliable predictions of effluent behavior have been precluded by the insufficiency of existing knowledge of current patterns. We would therefore strongly recommend that the monitoring program, discussed in the application for variance, be a rigorous one, encompassing investigations of influent, effluent, sludge, receiving water quality, water column and benthic biological communities, as well as subsurface current structure.

We appreciate the opportunity to review this permit application/public notice and hope you will find our comments helpful in making your final decision.